A METHOD TO FACILITATE THE AVOIDANCE OF INFECTION DURING INTESTINAL ANASTOMOSIS—PRELIMINARY REPORT.*

BY J. HALPENNY, M.D.,

OF WINNIPEG, MANITOBA,

From the Physiological Laboratory, University of Manitoba.

In the early attempts at securing union of divided intestine the chief difficulty was probably found to be in suturing, so that the continuity of the bowel was preserved. In order to meet this difficulty there arose many mechanical devices, used largely in end-to-end union. Different stages of development of these mechanical aids may be traced until the climax was probably reached when J. B. Murphy perfected the button known by his name. Not content, however, with this improved method, the efforts of surgeons were exerted towards doing away with mechanical aids altogether, and the Connell stitch in end-to-end union has accomplished this very well.

During the years covered by this progressive development many surgeons were using lateral anastomosis because the stitching is more easily carried out without any mechanical aid than in end-to-end union. At the present time some surgeons prefer the end-to-end or end-to-side method in practically all cases. Others, however, prefer lateral anastomosis in many cases. Mayo[1] says, "Lateral anastomosis, with end-to-end closure by the two-row suture method, we believe to be the safe resection for *acute* obstruction of the small intestine. . . . After resection for chronic obstruction of the small intestine end-to-end union is the operation of choice. . . . The ileocolic anastomosis should be lateral. . . . In resecting part of the transverse colon, end-to-end or lateral anastomosis may be performed. The Murphy button should

* Read before the Scientific Club, Winnipeg, April 7, 1907.

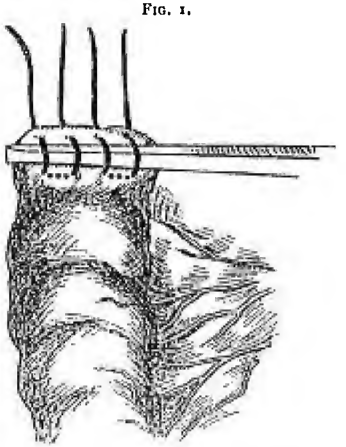
[1] Transactions Surgical Section American Medical Association, 1907.

be avoided, as there may be fecal masses of sufficient size to obstruct the lumen of the bowel."

This may be taken as a fair expression of the choice of methods; and it shows that lateral union is preferred by surgeons in many cases. Physiological workers such as Cannon, however, prefer end-to-end union because the immediate functional results are said to be better than after the lateral.

One of the difficulties in lateral anastomosis is that of avoiding infection of the field of operation at the time the

FIG. 1.



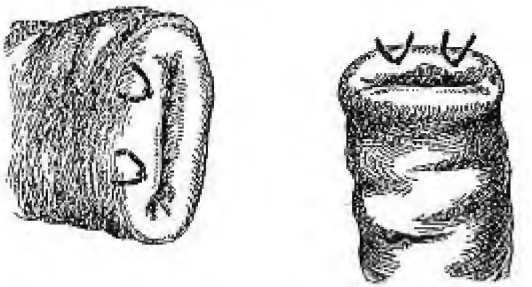
Inversion of cut ends of intestine.

artificial opening is made and before it is inclosed by suture. It was to overcome this difficulty that the operation here described was devised and tested.

The mesentery is treated in the usual way. The cut ends of the intestine are inverted by two Halsted stitches (Figs. 1 and 2). The intestine is lapped about four inches and a continuous silk suture fastens the two limbs together by going up just alongside the centre opposite to the mesentery, and back again just as far from the centre of the intestine as the former line of suture and on the opposite side (Fig. 3).

The knife (Fig. 4) is now inserted as shown (Fig. 5), entering the lumen of the bowel near one end of the intestine, and with the blade parallel to the circular fibres. It is passed

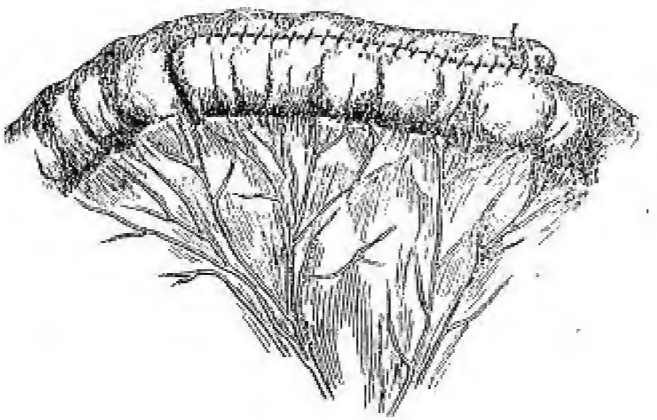
FIG. 2.



Cut end of intestine after inversion.

along the lumen of the bowel as far as the shank will allow (Fig. 6) and the artificial opening is made through the two

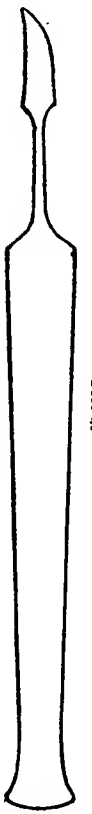
FIG. 3.



Lapping of the two sections of intestine.

layers of bowel by cutting back (Fig. 7). A purse-string suture is now placed about the knife, and, the knife being withdrawn, the hole is closed (Fig. 8).

The knife (Fig. 4) is made with a narrow, short blade and a long shank. The blade makes a very small hole, and the long shank allows the knife to pass up far enough in the intestine to make an opening sufficiently large. There is no danger of cutting the stitches, neither is there any danger of cutting too deeply. Sensation guides one in this.



Actual size of knife used.

FIG. 4.

One objection to this incision is that bleeding may occur, because the cut edges are not sewn over. I have found no difficulty arise from this in the few dogs I have operated on.

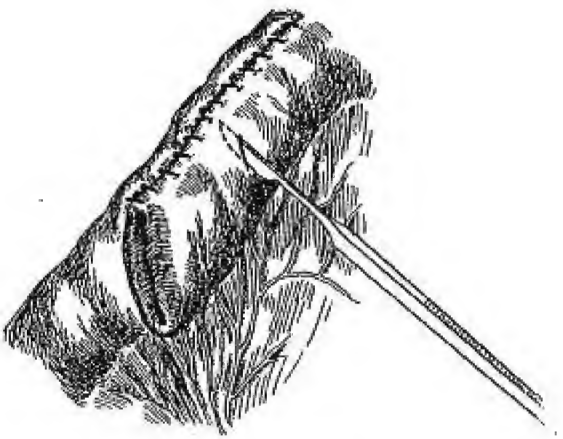
Up to the present my operation has been performed exclusively on dogs. So far I have operated on six and in only one of these has a fatal result supervened. This one was a very small puppy, the intestine, when flattened, measuring only one-half inch. Death was caused by gangrene of the bowel due to the stitches cutting off the circular vessels. The mesenteric circulation was not interfered with, neither was there any peritonitis. At the postmortem the artificial opening was larger than the lumen of the bowel.

The dogs were fed and watered as usual from the day of the operation. No blood was passed in the stool of any one of the six. Owing to the limited amount of space for housing animals the average length of time they were kept was only nineteen days, but with one exception besides the fatal case the animals seemed as well as ever. In that case there was not a large enough opening and the nutrition of the animal suffered somewhat before he was sacrificed. This case was operated on before I got the special knife made.

In no case was there any sign of peritoneal infection.

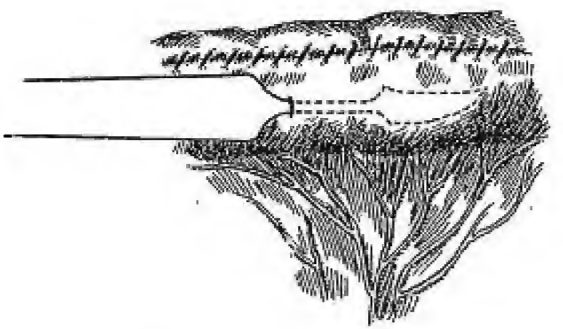
One dog had a stitch abscess in the abdominal wall, but in all the others the wound healed by first intention.

Fig. 5.



Inserting knife.

Fig. 6.



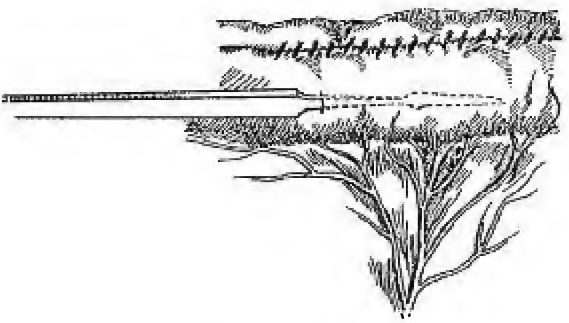
Knife introduced as far as shank will admit.

It is my intention to continue the series of operations, and to vary the procedure in regard both to the length of the

intestine removed and to the anatomical situation of the resection.

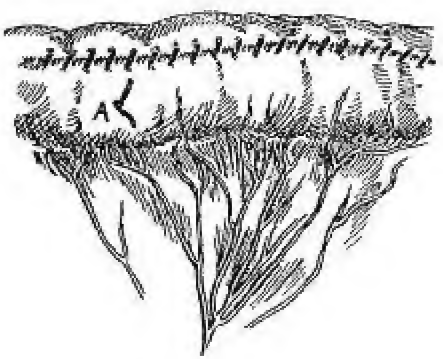
If the operation I have described can be carried out in dogs with results approximating to uniformity, I shall have no hesi-

FIG. 7.



Knife in position for cutting.

FIG. 8.



A. Knot after removal of knife.

tation in adopting the method in the case of the human intestine.